

Total Maximum Daily Load Information Sheet

Saline Creek

Waterbody Segment at a Glance:

County: Jefferson
Nearby Cities: Arnold
Length of impairment: 3.2 miles
Pollutants: Biochemical Oxygen Demand, Ammonia
Sources: Ron Rog and Hwy 141
Sewage Treatment Plants
(Northeast Sewer District)

Proposed changes to 2002 303(d) list: Correct mileage from 2 to 3.2, and source from “Ron Rog STP” to “2 NESD STPs”



State map showing location of watershed

TMDL Priority Ranking: Low

Description of the Problem

Beneficial uses of Saline Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption.

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

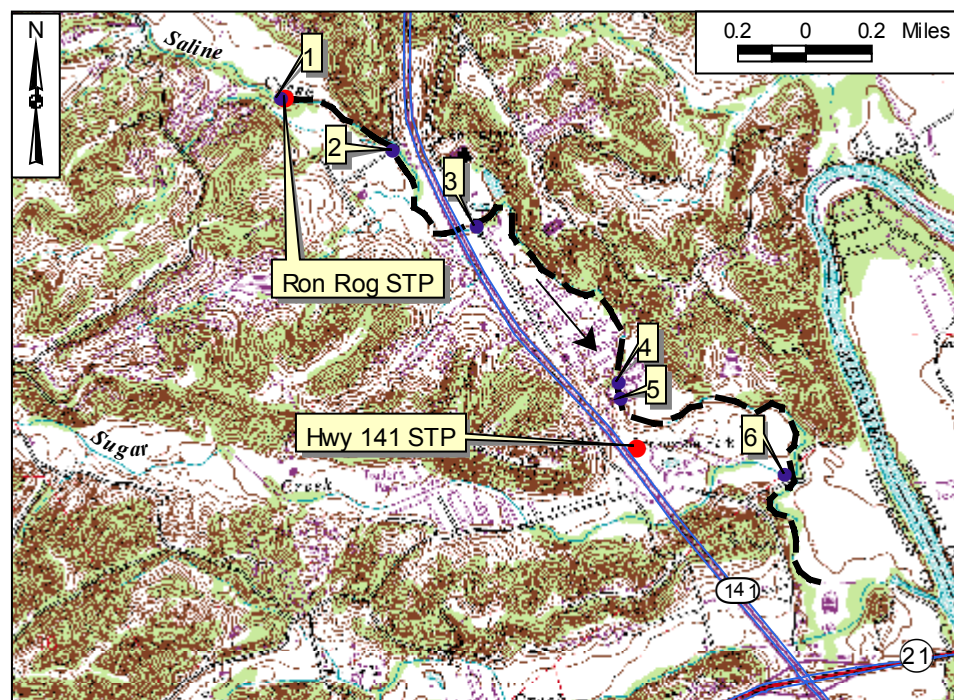
- The Missouri Water Quality Standard, found at 10 CSR 20-7.031 Table A, for dissolved oxygen (related to Biochemical Oxygen Demand) in streams is 5.0 milligrams per liter (mg/L) or parts per million.
- Ammonia standards vary depending on the pH and the temperature. The recommended ammonia limits for these facilities (at a pH of 7.8) are 2.0 mg/L for summer and 3.3 mg/L during the winter.

The wastewater from the Ron Rog and Hwy 141 sewage treatment plants (STP) is high in BOD (Biochemical Oxygen Demand), which lowers the oxygen in the stream. Most aquatic organisms require high levels of oxygen to survive. In addition, ammonia is a common by-product of wastewater treatment and under certain conditions can be toxic to aquatic life.

Missouri Department of Natural Resources conducted a water quality study on this creek in August and September 1992 and again in July 1995. These showed low levels of dissolved oxygen (unhealthy for aquatic life) below both treatment plants, with the largest sag below the Ron Rog plant. Ammonia levels throughout the study area were as high as 6 milligrams per liter (mg/L). In the September portion of the study, the effluent from both plants was found to be improved, as was instream water quality, but the stream was still not good enough to protect aquatic life. To fix the problems, the facilities need to be upgraded or reroute the discharge pipe to the Meramec (a bigger river more able to assimilate the discharge) or connect with the soon-to-be regional treatment plant.

Due to problems of chronic non-compliance with state water quality standards, the TMDL requires the effluent (discharge) from both STPs to be removed from the Saline Creek watershed (by either of the two options mentioned above). The U.S. Environmental Protection Agency approved this TMDL on Jan. 12, 2001. The permits were renewed Dec. 2001 with the new requirements included. A map and graphs summarizing the data may be found below.

Map of Impaired Portion of Saline Creek Showing Sampling Sites and Sewage Treatment Plants

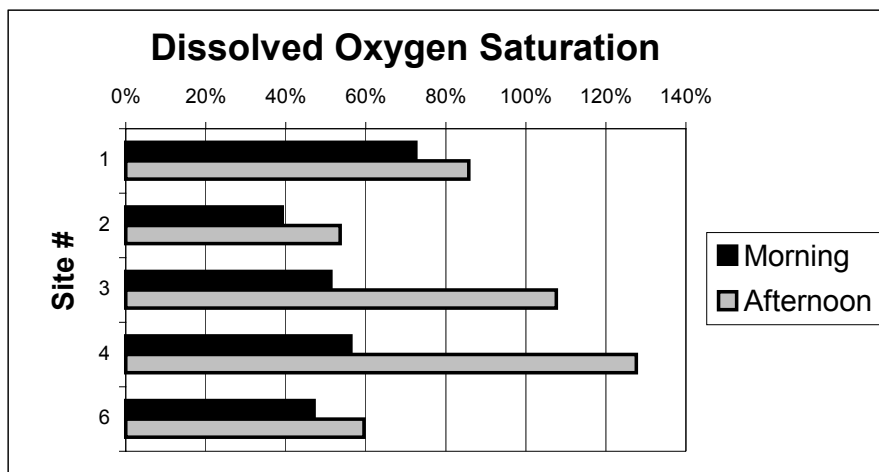


--- Impaired segment → Direction of flow

Site Legend

- 1 – Saline Creek 20 yards below Ron Rog WWTP
- 2 – Saline Creek 0.4 mile below Ron Rog WWTP
- 3 – Saline Creek 0.9 mile below Ron Rog WWTP
- 4 – Saline Creek just above Hwy 141 WWTP
- 5 – Hwy 141 WWTP effluent
- 6 – Saline Creek 0.7 mile below Hwy 141 WWTP

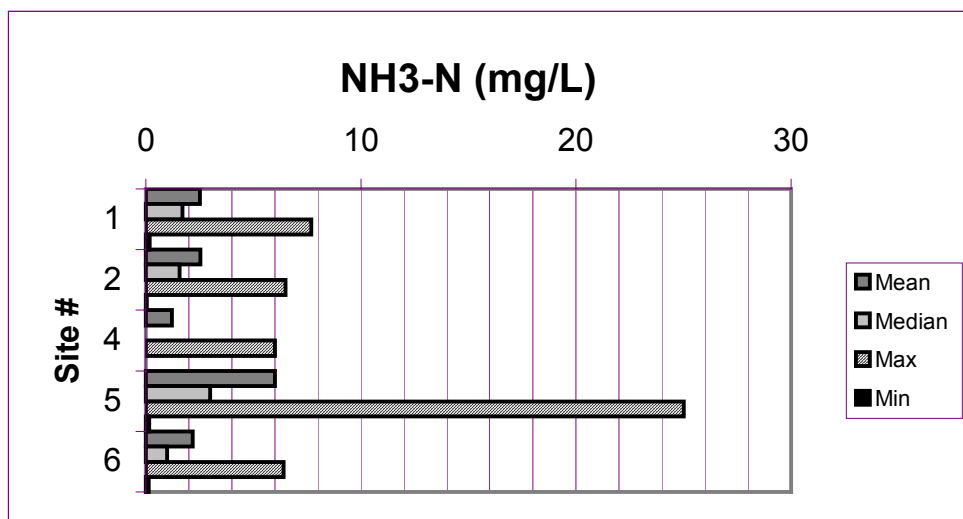
Average Dissolved Oxygen Saturation at sample sites on Saline Creek.
Samples taken in August and September, 1992, and July, 1995.



A Dissolved Oxygen Saturation below 80 percent is considered harmful to aquatic life.

Source: Missouri Dept. of Natural Resources.

Ammonia Nitrogen (NH₃-N) levels at sample sites in Saline Creek.
Samples taken in August and September, 1992, and July, 1995.



Ammonia standards vary depending on the pH and the temperature. The recommended ammonia limits for these STPs (at a pH of 7.8) is 2.1 mg/L for summer and 3.3 mg/L during the winter.

Source: Missouri Dept. of Natural Resources.

For more information call or write:

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